

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Lee Wright on March 4, 2008.

The application has been amended as follows:

2. Claim 2 is cancelled.
3. Rewrite claim 1 as:

- - A broad band cholesteric liquid crystal film comprising: a cholesteric liquid crystal film having a reflection bandwidth of 400 nm or more and a pitch length that changes continuously, obtained by coating a liquid crystal mixture containing a polymerizable mesogen compound (a), a polymerizable chiral agent (b) and a photoisomerizable material (c) on a substrate and polymerizing by ultraviolet radiation, ~~having a reflection bandwidth of 400 nm or more,~~ wherein the photoisomerizable material (e) is at least one photoisomerizable material selected from the group consisting of stilbene of structural formula (I) and azobenzene of structural formula (II). - -

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4. Rewrite claim 6 as:

- - A manufacturing method ~~for the broad band cholesteric liquid crystal film according to claim 1~~ comprising the steps of: coating a liquid crystal mixture containing a polymerizable mesogen compound (a), a polymerizable chiral agent (b) and a photoisomerizable material (c) on a substrate, ~~and ultraviolet polymerizing thereof~~ polymerizing by ultraviolet radiation, and forming a cholesteric liquid crystal film having a reflection bandwidth of 400 nm or more and a pitch length that changes continuously, wherein the photopolymerizable material is at least one photoisomerizable material selected from the group consisting of stilbene of structural formula (I) and azobenzene of structural formula (II). - -

Reasons for Allowance

5. The following is an examiner's statement of reasons for allowance.

The closest cited prior art of record, US 5,798,057 fails to fairly teach or suggest a broad band cholesteric liquid crystal film comprising: a cholesteric liquid crystal film having a reflection bandwidth of 400 nm or more and a pitch length that changes continuously, obtained by coating a liquid crystal mixture containing a polymerizable mesogen compound (a), a polymerizable chiral agent (b) and a photoisomerizable material (c) on a substrate and polymerizing by ultraviolet radiation, wherein the photoisomerizable material (c) is at least one photoisomerizable material selected from the group consisting of stilbene of structural formula (I) and azobenzene of structural formula (II).

US 5,798,057 fails to teach the use of a polymerizable chiral agent in combination with the polymerizable mesogen and the stilbene in the formation of the broad band cholesteric liquid crystal film, and hence fails to teach a broad band cholesteric liquid crystal film having the combination of a reflection bandwidth of 400 nm or more and a pitch length that changes continuously. US 6,099,758 fails to teach a non-derivatized stilbene of structural formula (I) that is not polymerizable, and is thus not combinable with US 5,798,057. See Applicant's arguments in the remarks section dated 12/10/07.

6. The new limitation is not new matter since structural formulae (I) and (II) are the commonly accepted ones for the respective terms of "stilbene" and "azobenzene", wherein said two compounds are part of a list of "stilbene, azobenzene and derivatives thereof" in the specification (page 21, lines 10-11).

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris, can be reached at (571)272-1478. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/

Sow-Fun Hon

*/Terrel Morris/
Supervisory Patent Examiner
Group Art Unit 1794*